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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,163	01/31/2001	Herbert F. Cattell	10010011-1	3274

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AGILENT TECHNOLOGIES
Legal Department, 51U-PD
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EXAMINER

CLOW, LORI A

ART UNIT PAPER NUMBER

1631

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/775,163

Applicant(s)

CATTELL, HERBERT F.

Examiner

Lori A. Clow, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 17-24, 35, 36 and 38-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 25-34 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/31/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election without traverse of Group I, in the paper mailed 23 October 2003 is acknowledged.

Claims 1-42 are currently pending. Claims 17-24, 35, 36, and 38-42 have been withdrawn for being drawn to a nonelected invention. Applicant is reminded that a complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16, 25-34 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 25 recite a "method of using an addressable array of biopolymers on a substrate which array has been exposed to a sample". This is indefinite, as it does not recite an active step such that it is clear that the array has been exposed to a sample.

Claims 1, 25, and 37, at step (c), recite "processing each region of each set according to a corresponding routine for that set". It is unclear as to what is meant by a "corresponding routine" in the claims. Does this mean a routine such as a clustering technique for expression patterns or some other routine to define of place a set apart from another set.

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Claims 1 and 25, at step (d) and step (c), respectively, recite “saving the displayed shapes in a first file and at least some of the processed results in a second file”. It is unclear which results should be saved and which results should be discarded. Are the results subject to a filter of some kind or some kind of normalization process that would allow some results to be saved versus other results?

Claims 1 and 25 recite a “method of using and addressable array”. However, no such step of using an array is recited in the claim language.

Claims 7 and 29 are also unclear for reciting “processed data”. What processed data? Is this different from the processed results at step (d)?

Claim 8 recites “evaluating results from the processing”. It is unclear what is meant by “evaluating the results”. What type of evaluation is done? Are the results evaluated by a computer algorithm or by human eye or some other method.

Claims 9 and 30 recite “altering a parameter used in the processing and re-processing a region using the altered parameter”. It is unclear what is meant by “altering a parameter”. What parameter is being altered and what alteration method is used to do so?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 25, 26 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,591,196 B1 (Yakhini et al.).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The instant invention is drawn to a method, apparatus, and a computer program product for using an addressable array of biopolymers on a substrate comprising detecting signals to get an image, establishing a shape of a region, processing the region according to a routine, and displaying the shapes.

In regard to claims 1, 25, and 37, Yakhini et al. teach a method and system for extracting data signals from scanned images resulting from optical, radiometric, or other type of analysis of a molecular array, thus detecting signals from an array and establishing an image of the array (see column 2). By virtue of detecting signals and extracting particular features from the array, shapes of regions are established (column 2, lines 12-15). Various processing steps occur to manipulate the image, such as determining reliable regions of the scanned image and extracting signal data from the features and local background regions (see column 2, steps (3) and (4)). Yakhini et al. further teaches at claim 1, that this method is computer implemented.

In regard to claims 2, 3, and 26 the molecular arrays commonly contain oligonucleotides or cDNA (column 1, lines 46-50)

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In regard to claim 4, Yakhini et al. teach that a method of determining corners of an array using a design file associated with the molecular array includes choosing a subsection of the array on which to perform corner analysis (column 8, lines 53-64). The information for subsections is stored in design files.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5, 11-16, 27, 28, 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,591,196 B1 (Yakhini et al.) as applied to claims 1-4, 25, 26 and 37 above, in view of US 6,633,659 (Zhou et al.).

Yakhini et al. teach a method and system for extracting data signals from scanned images resulting from optical, radiometric, or other type of analysis of a molecular array, thus detecting signals from an array and establishing an image of the array (see column 2). By virtue of

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detecting signals and extracting particular features from the array, shapes of regions are established (column 2, lines 12-15). Various processing steps occur to manipulate the image, such as determining reliable regions of the scanned image and extracting signal data from the features and local background regions (see column 2, steps (3) and (4)). Yakhini et al. further teaches at claim 1, that this method is computer implemented. The molecular arrays commonly contain oligonucleotides or cDNA (column 1, lines 46-50). Yakhini et al. also teach that a method of determining corners of an array using a design file associated with the molecular array includes choosing a subsection of the array on which to perform corner analysis (column 8, lines 53-64). The information for subsections is stored in design files.

Yakhini et al. do not specifically teach retrieving shapes and images before processing. However, Zhou et al. do teach that a preferred configuration of the system and method for automatically segmenting detected signals associated with chemical arrays includes a scanner having a digital sensor and an output, the digital scanning sensor scanning the array and transmitting from the output a digital image of the array, a memory for storing the transmitted digital image, and a processor. The processor processes the image (shape) stored in memory (column 6, lines 35-44). Furthermore, Zhou et al. teach analyzing the digital image (shape) to extract intensities at each sample location. Quantity and quality measurements are performed and signal pixels and background pixels are calculated and used to form the basis for, among other things, a confidence measure regarding the signal measurements (column 10, lines 36-41). Figure 7 shows the sub-grid detection process for pixel analysis.

It would have been prima facie obvious to one of ordinary skill in the art at the time of invention to use the system and method of Yakhini et al. for extracting data signals from scanned

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images with the specific sub-grid embodiments as taught by Zhou et al. to modify automated feature extraction processes. In fact, Yakhini et al. motivates one to do say at column 25, which states that the feature extraction methods outlined are applicable to an almost limitless number of different types of molecular arrays. Depending upon the type of scanning device utilized for array analysis, additional steps and techniques may be added in order to account for variations in interfaces, hardware components, and other parameters (lines 43-57).

No claims are allowed.


Inquiries

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242, or (703) 308-4028.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lori A. Clow, Ph.D., whose telephone number is (571) 272-0715. The examiner can normally be reached on Monday-Friday from 10 am to 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Legal Instrument Examiner, Tina Plunkett, whose telephone number is (703) 305-3524, or to the Technical Center receptionist whose telephone number is (571) 272-0549.


MARJORIE MORAN
PATENT EXAMINER

February 9, 2004
Lori A. Clow, Ph.D.
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